

## PATENT COOPERATION TREATY

Rec'd PCT 13 JUL 2004

From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

PCT

To:

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NOTIFICATION OF TRANSMITTAL OF  
THE INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT

(PCT Rule 71.1)

Date of mailing  
(day/month/year)

18.06.2004

Applicant's or agent's file reference  
AD6843PCT

## IMPORTANT NOTIFICATION

International application No.  
PCT/US 03/07352

International filing date (day/month/year)  
11.03.2003

Priority date (day/month/year)  
12.03.2002

Applicant  
E.I. DU PONT DE NEMOURS AND COMPANY

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.
4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

EEL NOTED

12 Sept 2004

Name and mailing address of the international  
preliminary examining authority:



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# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT (PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>AD6843PCT</b>	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA416)	
International application No. <b>PCT/US 03/07352</b>	International filing date ( <i>day/month/year</i> ) <b>11.03.2003</b>	Priority date ( <i>day/month/year</i> ) <b>12.03.2002</b>
International Patent Classification (IPC) or both national classification and IPC <b>C08K5/00</b>		
Applicant <b>E.I. DU PONT DE NEMOURS AND COMPANY</b>		
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of 1 sheets.</p>		
<p>3. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> <li>I <input checked="" type="checkbox"/> Basis of the opinion</li> <li>II <input type="checkbox"/> Priority</li> <li>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</li> <li>IV <input type="checkbox"/> Lack of unity of invention</li> <li>V <input checked="" type="checkbox"/> Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</li> <li>VI <input type="checkbox"/> Certain documents cited</li> <li>VII <input type="checkbox"/> Certain defects in the international application</li> <li>VIII <input type="checkbox"/> Certain observations on the international application</li> </ul>		
Date of submission of the demand  <b>01.10.2003</b>	Date of completion of this report  <b>18.06.2004</b>	
Name and mailing address of the international preliminary examining authority:   <b>European Patent Office</b> D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer  <b>Van de Panne, V</b>  Telephone No. +49 89 2399-8405 <div style="text-align: right;">  </div>	

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/US 03/07352

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, Pages**

1-17 as originally filed

**Claims, Numbers**

1-16, 21 (part) as originally filed

17-20, 21 (part) received on 12.02.2004 with letter of 11.02.2004

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).  
☐ the language of publication of the international application (under Rule 48.3(b)).  
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority in written form.  
☐ furnished subsequently to this Authority in computer readable form.  
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.  
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:  
☐ the claims, Nos.:  
☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/US 03/07352

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**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Yes: Claims	1-21
	No: Claims	
Inventive step (IS)	Yes: Claims	4-11
	No: Claims	1-3, 12-21
Industrial applicability (IA)	Yes: Claims	1-21
	No: Claims	

**2. Citations and explanations**

**see separate sheet**

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/US03/07352

**I** The following documents (D) are referred to in this Report:

D1 US-A 5 187 217

D2 EP-A 1 036 775

D3 US-A 5 322 875

D4 US-A 4 696 971

**II** The present set of claims is fully supported by the application as filed and meets the requirements of Article 34(2)(b) PCT.

**III** D1 discloses resin compositions based on PVB made in the presence of a surfactant such as sodium dioctylsulfosuccinate (DOSS) by a process as outlined in claim 21, and plasticized with 20 to 25 pph of plasticizer per 100 pph of resin. The applicant has argued that the process disclosed in D1 would result in the complete removal of the surfactant. This is credible and in line with D4, column 3 lines 16-31, where it is indicated that a complete removal of the surfactant through washing is possible. Neither D1 nor any of the other documents cited in the search report teaches plasticized PVB with a low content of plasticizer, which contains a surfactant. The claims are thus novel.

**IV** The problem to be solved by the present application is the provision of plasticized PVB with a low content of plasticizer and which is not prone to yellowing when processed and used as interlayer in safety glass. It seems that a bleaching agent is essential to solve this problem, see also page 8 lines 28-34 of the application. The present claims do not require the presence of such a bleaching agent, but merely require the presence of a surfactant. The inclusion of a bleaching agent is only an optional feature.

There is no evidence that the presence of a surfactant other than DOSS or another sulfosuccinate has any useful effect. Leaving a (minor) amount of surfactant in the PVB is a variation of the teaching of D1 which is well within reach of a skilled person. The compounds 3GO and dibutyl sebacate are conventional plasticizers which are often used in PVB, see D2 claim 1 and page 3 sections [0015] and [0016], D3 claim 1 and column 2 lines 48-52. The introduction of an UV light stabiliser in addition to the antioxidant is shown in D2, page 4 section [0033]. D3 also shows the use of sterically hindered phenols

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

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International application No. PCT/US03/07352

as antioxidants in plasticized PVB, see claim 1 and column 2 lines 22-33.

A person skilled in the art wishing to form the compositions of D1 and related compositions into sheets suitable for use as interlayer will find the most suitable extrusion temperature through trial and error. It is well within reach of a skilled person to keep the the YID low through addition of known antioxidants and stabilisers. The thickness of the interlayer, the uses of laminated glass and the laminating method are conventional.

The subject-matter of claims 1-3 and 12-21 does not involve an inventive step in view of D1 combined with D2 and/or D3 and/or the general knowledge of those skilled in the art.

V The prior art does not disclose or suggest the inclusion of a bleaching agent in plasticized PVB. The applicant has shown that the inclusion of a bleaching agent strongly reduces the yellowing of the PVB and solves the problem outlined above. The subject-matter of claims 4-11 thus involves an inventive step.

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17. The article of Claim 16 wherein the laminate is useful in an automobile, train, or boat as a: windshield; light cover; body glass, such as sun roof, moon roof, or back and/or side window; internal door; cabinet; cabinet door; partition, and the like.

18. The article of Claim 17 wherein the article is an automobile windshield, light cover, moon roof, sun roof, or back and/or side window.

19. The article of Claim 18 wherein the laminate is useful for: external windows on buildings; external doors; partitions; office windows; office doors; glass partitions; table tops; shelves; cabinet doors; protective covers for tables; room dividers; picture frame glass; display cabinets; display cases, and the like.

20. The article of Claim 12 wherein the laminate is obtained by a process comprising the steps: (i) bringing a PVB polymer interlayer and a glass plate into contact; (ii) removing air from between the glass and the interlayer; and (iii) applying heat and external pressure to adhesively bond the glass plate to the interlayer.

21. A process for preparing a low color PVB sheet comprising the steps: (I) admixing polyvinyl alcohol, butyraldehyde, an acid or mixture of acids, water, and a surfactant (II) stabilizing the mixture obtained in step (I) by (a) raising the pH of the mixture to at least pH 10 (b) isolating the resin by draining the liquid, (c) washing the resin with neutral pH water; (III) plasticizing the PVB resin composition with a finite amount of less than about 30 pph of plasticizer based on the